

JC Termografía RD

Infra-red Inspections – Pool leak detection, Incoming power systems, Switchgear scanning, Motor/Load testing & analysis, Panelboard/Circuit testing & analysis, Building mechanical systems, Water intrusion in buildings, Computer server farms & Communication equipment, Solar panels/farms and related electrical equipment.

Calle Villa Karibik URB. LA MULATA


Tel : +1 (809) 713-9335


Inspected on: 01/18/2024

Infra-red / Electrical Report

Prepared by Jim Cress

JC Termografía RD

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 [JC Termografia RD/fbook](https://www.facebook.com/JC Termografia RD/fbook)

Information Page

Thank You! **JC Termografia RD** has recently performed service at your facility. The following pages of this report contain important information about the possible safety of your personnel and the reliability of your equipment. **JC Termografia RD** has used one or more predictive maintenance tools to assist you in attaining the health status of your equipment. We encourage you to consult with your engineering and/or maintenance staff before making a final determination on repairs. **JC Termografia RD** assumes no liability directly or indirectly as a result of this service.

The **inventory** contains a list of all equipment designated by your facility for inspection. Equipment that was tested will be labeled "TESTED" or "T" on the inventory sheet. If a problem was noted with this equipment, it will list a page number that corresponds with a defect page contained in this report. Some items on the list may have not been tested due to: accessibility to equipment, equipment offline, or other barrier. Testing lightly loaded equipment may produce inconclusive results. The overall responsibility of knowing the equipment loading and status falls upon facility personnel.

The **defect** pages are listed directly after the inventory pages. Any anomaly(s) noted during the course of your service will be recorded on the defect pages. Each defect page will contain the data gathered, recommendations, and the criticality rating (see table).

<u>Criticality Table</u>	
****	100°F (55.5 deg C) and $> \Delta T$ (Temperature Difference) Failure Imminent, Repair Immediately or ASAP
***	65°F - 99°F (36.1 – 55.4 deg C) ΔT (Temperature Difference) Failure Likely, Repair ASAP
**	45°F - 64°F (25 – 36.0 deg C) ΔT (Temperature Difference) Failure Possible, Schedule Repair
*	20°F - 44°F (11.1 – 24.9 deg C) ΔT (Temperature Difference) Immediate Failure Unlikely, Repair as Time Permits

The **criticality rating** of your equipment was assigned by your technician based on a number of factors which may include some or all of the following: industry standard temperature scale, loading, significance of asset, safety, technicians experience, and other predictive maintenance technologies.

We appreciate the opportunity to serve you. If you have any questions regarding this report, we are happy to assist in any way.

Jim Cress - President

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Technicians Notes

Thank you for having me out to your facility. The scan went smoothly and took about 3 hours and 30 minutes to complete. Your staff was readily available and we had no problem accessing all your panels and spaces.

We were called to your villa with the complaint that the power goes out periodically and then returns. Eden Norte has been to the premises and says everything is fine. There is also a discrepancy of where the 120V and 220V power is actually fed from, the pole across the street or the pole in the back corner by the pool.

Incoming power from Eden Norte - we discovered some damaged cables coming from pole transformer to high side of power meters pages 8 to 10. There are also some poor connections in a open junction box mounted in stone fence see page 11. See short and long term recommendations on pages 9, 11 and 12

Villa incoming power from low side of power meters – we discovered the main junction box is not closed and secured, there are old redundant breakers in the box, there are poorly connected wires on breakers, there are breakers not secured to the panel, there are neutral and ground wires not securely attached, there are wires not rated for direct burial leaving the box and buried prior to entering “conduits”. See pages 13 and 14.

Villa power distribution from main junction box to villa cellar – we discovered that there are many instances of “conduits” not being connected, not being sealed against water and I use the term “conduits” because these are not proper electrical conduits, these are plastic pipe that is not rated for containing cables in a direct burial situation. Also cables are improperly buried in the earth without mechanical protection as they run to the “conduits”, none of the “conduits” are sealed against water intrusion. See pages 15 to 18.

Villa cellar and 2 main panels – upper breaker panel – we discovered that there are several deficiencies here. 1) double landed breakers (breakers feeding more than 1 circuit), 2) wire cut off breakers left hanging (this may account for some dead circuits inside and outside), 3) breakers not affixed properly in panel due to broken bus pieces. 4) no cover, 5) no standard north American or European wire color scheme used. 6) yellow power wire appears too small for amperage, 7) poorly / improperly connected neutrals and ground wires. 8) loose wire connections on breakers. 9) box generally messy and overcrowded. See page 21. Lower breaker panel finding similar to upper panel. See pages 22 and 23.

Villa inside and outside branch circuits, see table below for list of plugs and switches as well as pages 24 to 30 for recommendations.

Villa pool enclosure – we discovered that the pool pump breaker panel is open and has no cover, there is no switch for the pump the breaker must be actuated manually (dangerous). There is a hot spot on the neutral connection, the pump connection box is open, the feed cable to the pump motor is the wrong type, ampacity and has a hot spot on the poorly made connection. See pages 31 to 34.


Conclusion – the intermittent power loss is probably due to either 1) a pole transformer problem, 2) water intrusion into the incoming cables in the outside pit or 3) water intrusion into the conduits from the customer main junction box.


Thank You,

Jim Cress

Lead Technician: Jim Cress

Equipment: FLIR E6-XT, FLUKE TS-600 and Gardner Bender GRT-3500

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Electrical Testing – circuits, plugs and lights

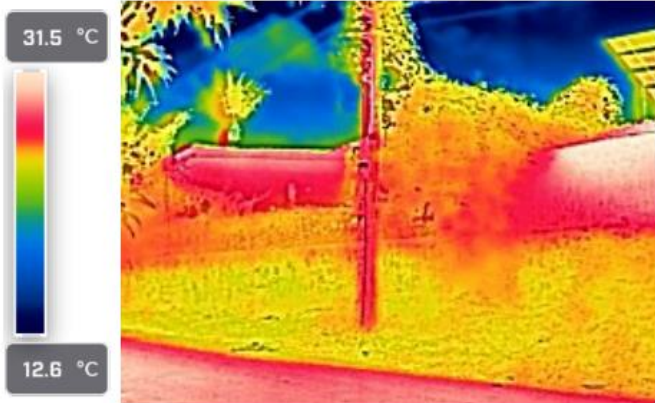
Calle Villa Karibik URB. LA MULATA

Location	Equipment	Status	Anomaly
Cellar upper panel	24 cct panelboard	Tested	See page 21
Cellar lower panel	6 cct panelboard	Tested	See page 22 & 23
Entranceway room	light	Tested	None
Entranceway room	2 switches	Tested	None
Entranceway room	Plug in behind desk	Tested	No power
Living room	Light	Tested	Hanging needs resecured
Living room	2 switches	Tested	None
Living room	Plug entranceway wall	Tested	No ground
Living room	Plug outside wall	Tested	No ground
Kitchen	2 switches	Tested	None
Kitchen	2 plugs	Tested	None
Kitchen	1 stove vent light	Tested	None
Kitchen	1 stove vent fan	Tested	Doesn't work
Kitchen	Fridge power	Tested	Powered by extension cord, should have dedicated feed and breaker
Main floor office	Old style plug	Tested	No ground
Main floor office	New white plug	Tested	None
Main floor office	Black triple plug	Tested	No ground
Main floor office	Switch in alcove	Tested	Hanging, incorrect wire size

Main floor office	Switch by hallway	Tested	Broken cover
Main floor bathroom	plug	Tested	No ground, should be a GFCI receptacle
Main floor bathroom	Light and switch	Tested	None
Stairways	2 lights	Tested	Not working, possibly bulbs?
2 nd floor room #1	plug	Tested	No ground
2 nd floor bathroom	plug	Tested	No ground, should be a GFCI receptacle
2 nd floor washing area	plug	Tested	No ground
2 nd floor room #2	plugs	Tested	No grounds
2 nd floor master bathroom	plug	Tested	No ground, should be a GFCI receptacle
2 nd floor master bedroom	plugs	Tested	No grounds
3 rd floor	plugs	Tested	No grounds
Exterior – entranceway fence	2 lights and 1 plug	Tested	Plug no power, lights 1 doesn't work, 1 needs new
Exterior – exterior walls	3 AC units	Tested	None
Exterior	2 plugs, 1 light	Tested	See page 27 & 28
Exterior – building rear	1 light, 1 plug	Tested	See page 30
Gazebo	2 plugs	Tested	No ground



2023-01-18 6:36:25 PM



FLIR0831.jpg

Incoming power from this pole?



639122303

Parameters

Emissivity	0.95
Distance	1.05 m
Reflected temp.	30.0 °C
Atmospheric temp.	30.0 °C
Relative humidity	50.0%
Ext. optics temp.	30.0 °C
Ext. optics trans.	1.00

File information

File name	FLIR0831.jpg
File size	132 KB
Width	240
Height	180
Minimum temp.	11.2 °C
Maximum temp.	32.1 °C

Camera information

Camera model	FLIR E6xt Wifi
Lens	FOL7
Camera serial	639122303
Filter	
Range max.	250.0 °C
Range min.	-20.0 °C
Field of view	44.98

Measurements

Target Temperature	Reference Temperature	Temperature Difference	Criticality Rating
N/A	N/A	N/A	
Amperage A	Amperage B	Amperage C	Rated Amps/Volts
N/A	N/A	N/A	100A / 120/220V

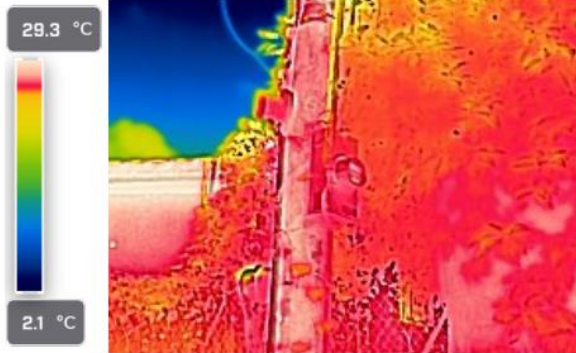
Comments: Pole transformer across the street – picture for reference only no thermal analysis.

Recommendations: None for reference only



2023-01-18 6:36:25 PM

Incoming power pole?



FLIR0833.jpg



639122303

Parameters

Emissivity	0.95
Distance	1.05 m
Reflected temp.	30.0 °C
Atmospheric temp.	30.0 °C
Relative humidity	50.0%
Ext. optics temp.	30.0 °C
Ext. optics trans.	1.00

File information

File name	FLIR0833.jpg
File size	121 KB
Width	240
Height	180
Minimum temp.	2.7 °C
Maximum temp.	30.2 °C

Camera information

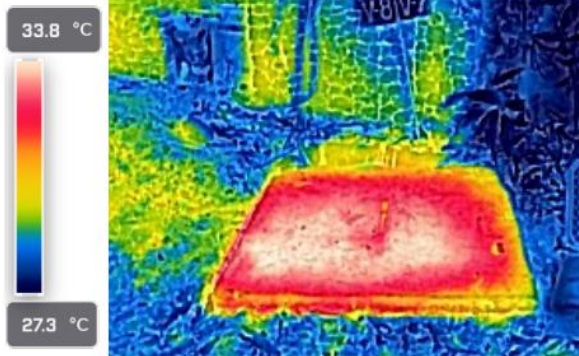
Camera model	FLIR E6xt Wifi
Lens	FOL7
Camera serial	639122303
Filter	
Range max.	250.0 °C
Range min.	-20.0 °C
Field of view	44.98

Measurements

Target Temperature	Reference Temperature	Temperature Difference	Criticality Rating
N/A	N/A	N/A	
Amperage A	Amperage B	Amperage C	Rated Amps/Volts
N/A	N/A	N/A	100A / 120/220V
Comments: Pole transformer across the street – picture for reference only no thermal analysis.			
Recommendations: None for reference only			



2023-01-18 6:36:25 PM



FLIR0829.jpg

Incoming area ground pit



639122303

Parameters

Emissivity	0.95
Distance	1.05 m
Reflected temp.	30.0 °C
Atmospheric temp.	30.0 °C
Relative humidity	50.0%
Ext. optics temp.	30.0 °C
Ext. optics trans.	1.00

File information

File name	FLIR0829.jpg
File size	155 KB
Width	240
Height	180
Minimum temp.	27.1 °C
Maximum temp.	33.9 °C

Camera information

Camera model	FLIR E6xt Wifi
Lens	FOL7
Camera serial	639122303
Filter	
Range max.	250.0 °C
Range min.	-20.0 °C
Field of view	44.98

Measurements

Target Temperature	Reference Temperature	Temperature Difference	Criticality Rating
N/A	N/A	N/A	
Amperage A	Amperage B	Amperage C	Rated Amps/Volts
N/A	N/A	N/A	100A / 120/220V
Comments: Incoming pit area – picture for reference only no thermal analysis.			
Recommendations: None for reference only			

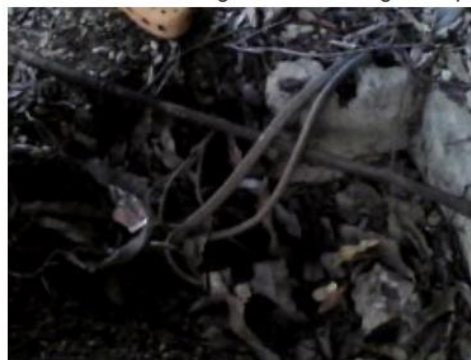


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Incoming area cables in ground pit



FLIR0837.jpg



639122303

Parameters

Emissivity	0.95
Distance	1.05 m
Reflected temp.	30.0 °C
Atmospheric temp.	30.0 °C
Relative humidity	50.0%
Ext. optics temp.	30.0 °C
Ext. optics trans.	1.00

File information

File name	FLIR0837.jpg
File size	114 KB
Width	240
Height	180
Minimum temp.	27.1 °C
Maximum temp.	32.1 °C

Camera information

Camera model	FLIR E6xt Wifi
Lens	FOL7
Camera serial	639122303
Filter	
Range max.	250.0 °C
Range min.	-20.0 °C
Field of view	44.98

Measurements

Target Temperature	Reference Temperature	Temperature Difference	Criticality Rating
N/A	N/A	N/A	
Amperage A	Amperage B	Amperage C	Rated Amps/Volts
N/A	N/A	N/A	100A / 120/220V

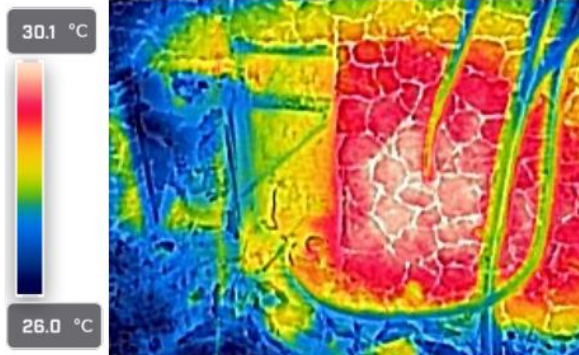
Comments: Incoming pit area showing cables in ground – picture for reference only – no thermal analysis.
 Recommendations - short term: patch up cables with appropriate rated heat shrink repair kit, make proper connections using bolted connections or insulated motor type connections. Ensure all connections are waterproof.(see pictures at bottom of this report)
 Recommendations – long term: re run cables new from pole transformer directly to high side of power meters with no breaks in cables, bury in properly rated conduit or bus duct and fill with firestop or equivalent to keep water from intruding and filling conduits and damaging cables.



Target Temperature	Reference Temperature	Temperature Difference	Criticality Rating
N/A	N/A	N/A	
Amperage A	Amperage B	Amperage C	Rated Amps/Volts
N/A	N/A	N/A	100A / 120/220V
Comments: Incoming pit area showing damaged cables in ground – picture for reference only			
Recommendations: As above.			



2023-01-18 6:36:25 PM



FLIR0825.jpg

Main Incoming connections to meter socket



639122303

Parameters

Emissivity	0.95
Distance	1.05 m
Reflected temp.	30.0 °C
Atmospheric temp.	30.0 °C
Relative humidity	50.0%
Ext. optics temp.	30.0 °C
Ext. optics trans.	1.00

File information

File name	FLIR0825.jpg
File size	140 KB
Width	240
Height	180
Minimum temp.	25.8 °C
Maximum temp.	30.2 °C

Camera information

Camera model	FLIR E6xt Wifi
Lens	FOL7
Camera serial	639122303
Filter	
Range max.	250.0 °C
Range min.	-20.0 °C
Field of view	44.98

Measurements

Sp1	29.0 °C
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Target Temperature	Reference Temperature	Temperature Difference	Criticality Rating
N/A	N/A	N/A	
Amperage A	Amperage B	Amperage C	Rated Amps/Volts
N/A	N/A	N/A	100A / 120/220V

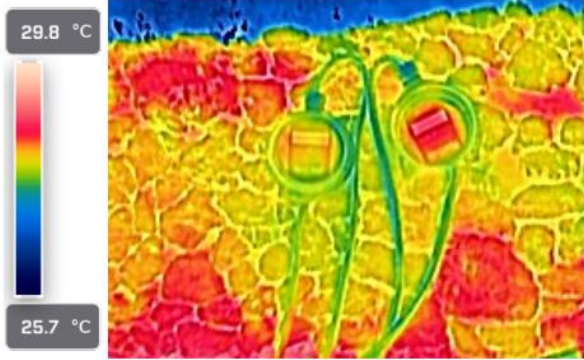
Comments: Incoming connection to meter socket – picture for reference only, no thermal analysis.

Recommendations – short term: repair junction box and cover, remake proper connections either bolted or motor rated insulated connectors. (see pictures at end of report)

Recommendations – long term: re run new cable directly from pole transformer to power meter bypassing this junction box.



2023-01-18 6:36:25 PM



FLIR0827.jpg

Main meter sockets 120V and 220V



639122303

Parameters

Emissivity	0.95
Distance	1.05 m
Reflected temp.	30.0 °C
Atmospheric temp.	30.0 °C
Relative humidity	50.0%
Ext. optics temp.	30.0 °C
Ext. optics trans.	1.00

File information

File name	FLIR0827.jpg
File size	121 KB
Width	240
Height	180
Minimum temp.	26.5 °C
Maximum temp.	29.2 °C

Camera information

Camera model	FLIR E6xt Wifi
Lens	FOL7
Camera serial	639122303
Filter	
Range max.	250.0 °C
Range min.	-20.0 °C
Field of view	44.98

Measurements

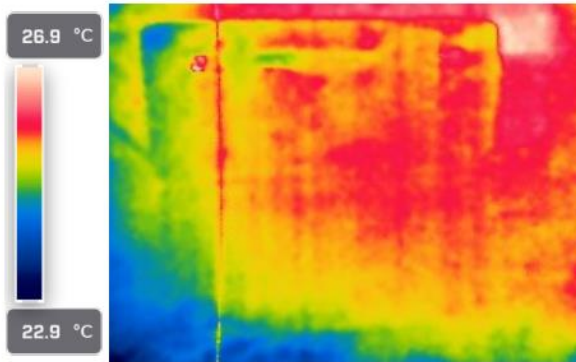
Target Temperature	Reference Temperature	Temperature Difference	Criticality Rating
N/A	N/A	N/A	
Amperage A	Amperage B	Amperage C	Rated Amps/Volts
N/A	N/A	N/A	100A / 120/220V

Comments: Incoming meter sockets – picture for reference only

Recommendations: As above recommendations, when entering new cables fabricate a bracket to affix both securely and level.



2023-01-18 6:36:25 PM



FLIR0839.jpg

main customerconnection point after meter sockets



639122303

Parameters

Emissivity	0.95
Distance	1.05 m
Reflected temp.	30.0 °C
Atmospheric temp.	30.0 °C
Relative humidity	50.0%
Ext. optics temp.	30.0 °C
Ext. optics trans.	1.00

File information

File name	FLIR0839.jpg
File size	74 KB
Width	240
Height	180
Minimum temp.	22.9 °C
Maximum temp.	27.1 °C

Camera information

Camera model	FLIR E6xt Wifi
Lens	FOL7
Camera serial	639122303
Filter	
Range max.	250.0 °C
Range min.	-20.0 °C
Field of view	44.98

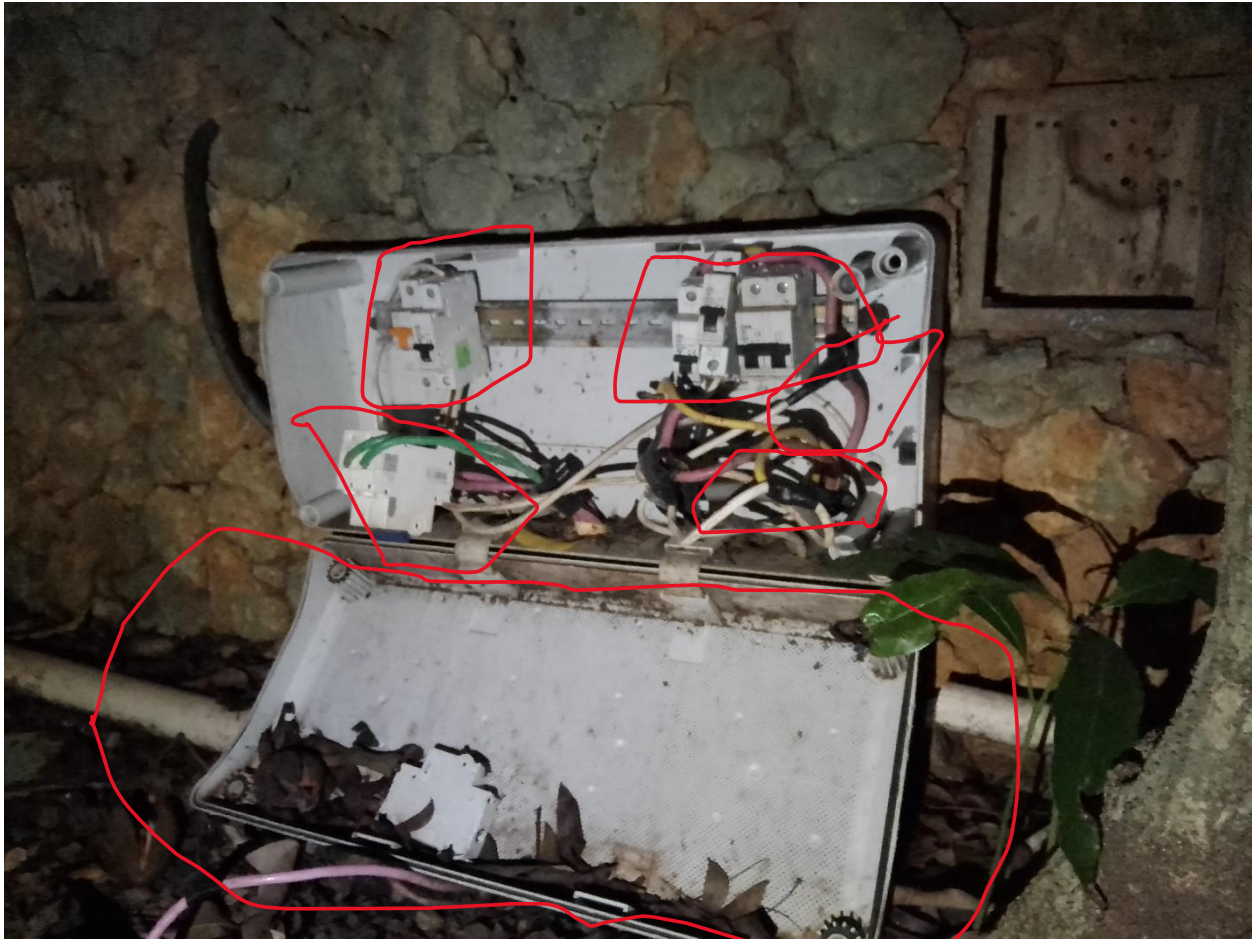
Measurements

Target Temperature	Reference Temperature	Temperature Difference	Criticality Rating
N/A	N/A	N/A	
Amperage A	Amperage B	Amperage C	Rated Amps/Volts
N/A	N/A	N/A	100A / 120/220V

Comments: Incoming power connections from meter sockets – picture for reference only no thermal analysis.

Recommendations – short term: 1) close and secure junction box, ensure seal to keep water out. 2) remove unused, damaged breakers to free up space and make troubleshooting less confusing. 3) remove and reconnect cables to breakers ensuring proper connections. Remove temporary joints in neutrals and grounds and use proper bolted connections. 4) secure all breakers to backplate of panel, ensure DIN rail is grounded. 5) Dig up bare buried wires and cover in heat shrink or another suitable mechanical protection and plug up conduit entries with firestop or similar to keep water out.

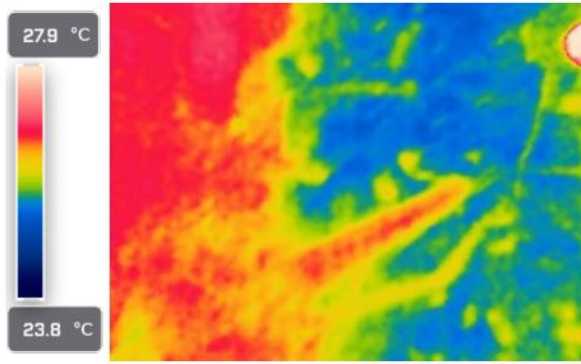
Recommendations – long term: replace box and all breakers, redo all connections, extend conduits to the junction box and ensure conduits are properly sealed. Also ensure all wires are properly rated for the amperage required.



Target Temperature	Reference Temperature	Temperature Difference	Criticality Rating
N/A	N/A	N/A	
Amperage A	Amperage B	Amperage C	Rated Amps/Volts
N/A	N/A	N/A	100/A / 120/220V
Comments: Incoming power connections from meter sockets – picture for reference only, no thermal analysis.			
Recommendations: As above.			



2023-01-18 6:36:25 PM



FLIR0841.jpg

Conduit from main connection box to villa



639122303

Parameters

Emissivity	0.95
Distance	1.05 m
Reflected temp.	30.0 °C
Atmospheric temp.	30.0 °C
Relative humidity	50.0%
Ext. optics temp.	30.0 °C
Ext. optics trans.	1.00

File information

File name	FLIR0841.jpg
File size	79 KB
Width	240
Height	180
Minimum temp.	25.2 °C
Maximum temp.	29.8 °C

Camera information

Camera model	FLIR E6xt Wifi
Lens	FOL7
Camera serial	639122303
Filter	
Range max.	250.0 °C
Range min.	-20.0 °C
Field of view	44.98

Measurements

Target Temperature	Reference Temperature	Temperature Difference	Criticality Rating
N/A	N/A	N/A	
Amperage A	Amperage B	Amperage C	Rated Amps/Volts
N/A	N/A	N/A	100A / 120/220V

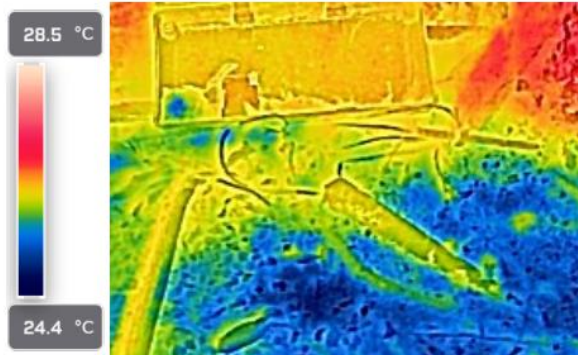
Comments: Distribution conduit from Incoming power connections to villa – picture for reference only

Recommendations: Short term: seal conduit with appropriate sealant and mechanically protect exposed cable.

Recommendations: Long term: replace conduit with appropriate type, ensure conduit runs end to end with no breaks and fill ends with appropriate conduit sealer once re-installed.



2023-01-18 6:36:25 PM



FLIR0861.jpg

Conduits from main connection point to villa



639122303

Parameters

Emissivity	0.95
Distance	1.05 m
Reflected temp.	30.0 °C
Atmospheric temp.	30.0 °C
Relative humidity	50.0%
Ext. optics temp.	30.0 °C
Ext. optics trans.	1.00

File information

File name	FLIR0861.jpg
File size	119 KB
Width	240
Height	180
Minimum temp.	24.8 °C
Maximum temp.	26.9 °C

Camera information

Camera model	FLIR E6xt Wifi
Lens	FOL7
Camera serial	639122303
Filter	
Range max.	250.0 °C
Range min.	-20.0 °C
Field of view	44.98

Measurements

Target Temperature	Reference Temperature	Temperature Difference	Criticality Rating
N/A	N/A	N/A	
Amperage A	Amperage B	Amperage C	Rated Amps/Volts
N/A	N/A	N/A	100A / 120/220V

Comments: Distribution conduit from Incoming power connections to villa – picture for reference only

Recommendations: Short term: seal conduit with appropriate sealant and mechanically protect exposed cable.

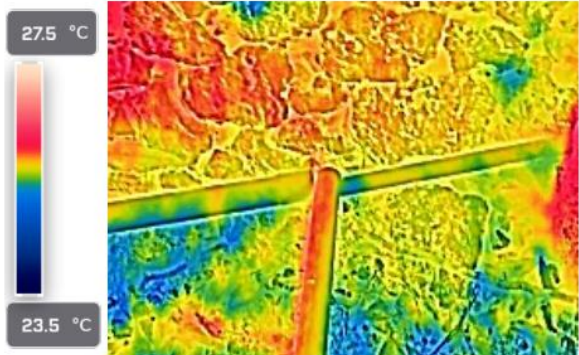
Recommendations: Long term: replace conduit with appropriate type, ensure conduit runs end to end with no breaks and fill ends with appropriate conduit sealer once re-installed.



Target Temperature	Reference Temperature	Temperature Difference	Criticality Rating
N/A	N/A	N/A	
Amperage A	Amperage B	Amperage C	Rated Amps/Volts
N/A	N/A	N/A	100A / 120/220V
Comments: Distribution conduit from Incoming power connections to villa – picture for reference only			
Recommendations: As above.			



2023-01-18 6:36:25 PM



FLIR0863.jpg

Conduit connections in the yard heading to villa



639122303

Parameters

Emissivity	0.95
Distance	1.05 m
Reflected temp.	30.0 °C
Atmospheric temp.	30.0 °C
Relative humidity	50.0%
Ext. optics temp.	30.0 °C
Ext. optics trans.	1.00

File information

File name	FLIR0863.jpg
File size	156 KB
Width	240
Height	180
Minimum temp.	24.9 °C
Maximum temp.	26.3 °C

Camera information

Camera model	FLIR E6xt Wifi
Lens	FOL7
Camera serial	639122303
Filter	
Range max.	250.0 °C
Range min.	-20.0 °C
Field of view	44.98

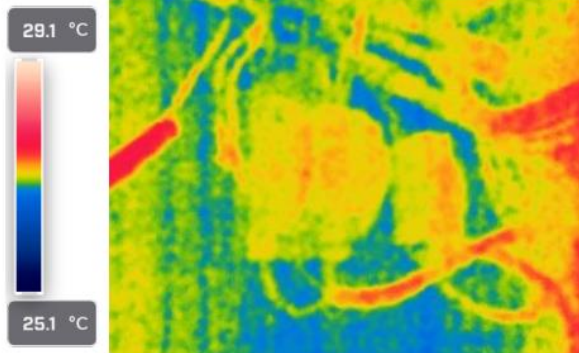
Measurements

Target Temperature	Reference Temperature	Temperature Difference	Criticality Rating
N/A	N/A	N/A	
Amperage A	Amperage B	Amperage C	Rated Amps/Volts
N/A	N/A	N/A	100A / 120/220V
Comments: Distribution conduit from Incoming power connections to villa – picture for reference only			
Recommendations: As above.			



2023-01-18 6:36:25 PM

100A main disconnect in cellar and tie in to backup power system



FLIR0843.jpg



639122303

Parameters

Emissivity	0.95
Distance	1.05 m
Reflected temp.	30.0 °C
Atmospheric temp.	30.0 °C
Relative humidity	50.0%
Ext. optics temp.	30.0 °C
Ext. optics trans.	1.00

File information

File name	FLIR0843.jpg
File size	83 KB
Width	240
Height	180
Minimum temp.	26.7 °C
Maximum temp.	27.7 °C

Camera information

Camera model	FLIR E6xt Wifi
Lens	FOL7
Camera serial	639122303
Filter	
Range max.	250.0 °C
Range min.	-20.0 °C
Field of view	44.98

Measurements

Target Temperature	Reference Temperature	Temperature Difference	Criticality Rating
N/A	N/A	N/A	
Amperage A	Amperage B	Amperage C	Rated Amps/Volts
N/A	N/A	N/A	100A / 120/220V

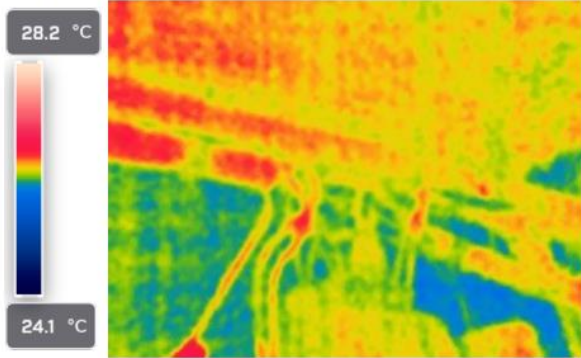
Comments: 100A main disconnect switch from Incoming power connections to breaker panels – picture for reference only

Recommendations – Short term: remove redundant cables, move switch if possible to make space to declutter cables at the top

Recommendations – long term: remove 100A disconnect switch and install a proper disconnect switch. Declutter all cables and remove unused cables and unused backup power system. See picture below.



2023-01-18 6:36:25 PM



FLIR0845.jpg

100A main disconnect close up



639122303

Parameters

Emissivity	0.95
Distance	1.05 m
Reflected temp.	30.0 °C
Atmospheric temp.	30.0 °C
Relative humidity	50.0%
Ext. optics temp.	30.0 °C
Ext. optics trans.	1.00

File information

File name	FLIR0845.jpg
File size	70 KB
Width	240
Height	180
Minimum temp.	25.9 °C
Maximum temp.	26.8 °C

Camera information

Camera model	FLIR E6xt Wifi
Lens	FOL7
Camera serial	639122303
Filter	
Range max.	250.0 °C
Range min.	-20.0 °C
Field of view	44.98

Measurements

Sp1	26.6 °C
Sp2	26.5 °C

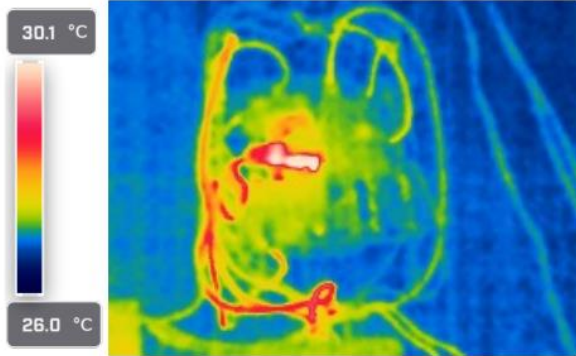
Target Temperature	Reference Temperature	Temperature Difference	Criticality Rating
26° C	30° C	0.6° C	
Amperage A	Amperage B	Amperage C	Rated Amps/Volts
N/A	N/A	N/A	100A / 120/220V

Comments: 100A main disconnect switch from Incoming power connections to breaker panels – picture for reference only

Recommendations: As above, showing some cable heating due to cable crowding.

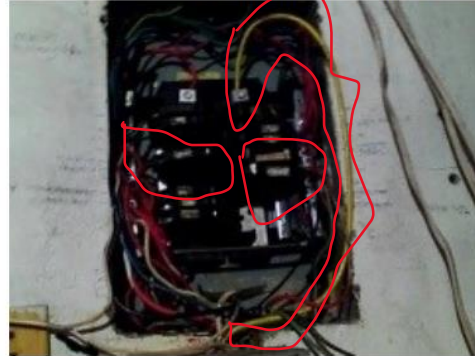


2023-01-18 6:36:25 PM



FLIR0849.jpg

Cellar area upper breaker panel



639122303

Parameters

Emissivity	0.95
Distance	1.05 m
Reflected temp.	30.0 °C
Atmospheric temp.	30.0 °C
Relative humidity	50.0%
Ext. optics temp.	30.0 °C
Ext. optics trans.	1.00

File information

File name	FLIR0849.jpg
File size	96 KB
Width	240
Height	180
Minimum temp.	26.5 °C
Maximum temp.	34.9 °C

Camera information

Camera model	FLIR E6xt Wifi
Lens	FOL7
Camera serial	639122303
Filter	
Range max.	250.0 °C
Range min.	-20.0 °C
Field of view	44.98

Measurements

Sp1	34.7 °C
-----	---------

Target Temperature	Reference Temperature	Temperature Difference	Criticality Rating
30° C	30° C	34.7° C	*
Amperage A	Amperage B	Amperage C	Rated Amps/Volts
See table	See table	See table	100A / 120/220V

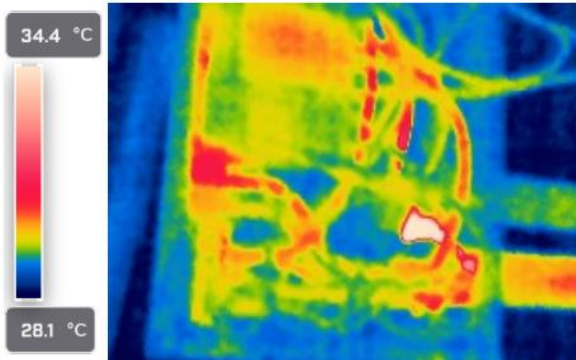
Comments: Cellar area upper breaker panel – see recommendations, also hot connection on breaker.

Recommendations – short term: 1) install sufficient breakers for # of circuits, 2) remove cut off wire stubs, trace cut cables and reconnect to appropriate breakers, test circuits. 3) leave for time being, see long term recommendations. 4) install panel cover, 5) phase power wires with black electrical tape, neutrals with white and grounds with green for easy identification. 6) re run new wire 100A rated, check corresponding red for size. 7) check and tighten all connections, use proper bolted connections for grounds and neutral bar for neutrals. 8) remove and reinstall all breaker wires and test for tightness, 9) declutter box and separate wires where possible.

Recommendations – long term: 1) replace box and breakers with 100A 24cct panel cw cover, neutral and ground bus, reattach all wires using only 1 breaker per circuit, land all neutrals on neutral bus, land all ground wires on ground bus. Ensure all wires are appropriate size for amperage of breakers.



2023-01-18 6:36:25 PM



FLIR0851.jpg

Cellar area lower breaker panel



639122303

Parameters

Emissivity	0.95
Distance	1.05 m
Reflected temp.	30.0 °C
Atmospheric temp.	30.0 °C
Relative humidity	50.0%
Ext. optics temp.	30.0 °C
Ext. optics trans.	1.00

File information

File name	FLIR0851.jpg
File size	117 KB
Width	240
Height	180
Minimum temp.	28.0 °C
Maximum temp.	36.9 °C

Camera information

Camera model	FLIR E6xt Wifi
Lens	FOL7
Camera serial	639122303
Filter	
Range max.	250.0 °C
Range min.	-20.0 °C
Field of view	44.98

Measurements

Sp1	35.6 °C
Sp2	31.0 °C

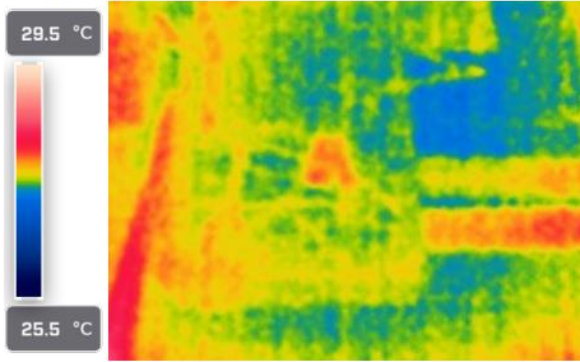
Target Temperature	Reference Temperature	Temperature Difference	Criticality Rating
30° C	30° C	35.6° C	*
Amperage A	Amperage B	Amperage C	Rated Amps/Volts
See table	See table	See table	60A / 120/220V

Comments: Cellar area lower breaker panel – hot spot detected on a taped neutral connection

Recommendations: Same as for upper panel above.

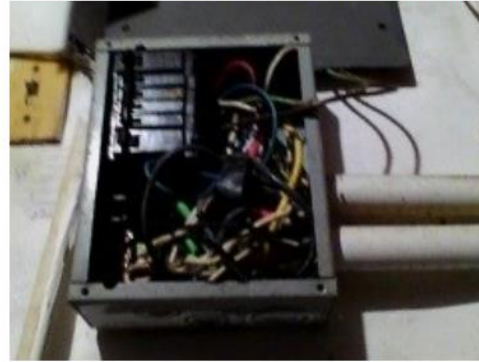


2023-01-18 6:36:25 PM



FLIR0847.jpg

Cellar area lower breaker panel



639122303

Parameters

Emissivity	0.95
Distance	1.05 m
Reflected temp.	30.0 °C
Atmospheric temp.	30.0 °C
Relative humidity	50.0%
Ext. optics temp.	30.0 °C
Ext. optics trans.	1.00

File information

File name	FLIR0847.jpg
File size	81 KB
Width	240
Height	180
Minimum temp.	27.2 °C
Maximum temp.	28.5 °C

Camera information

Camera model	FLIR E6xt Wifi
Lens	FOL7
Camera serial	639122303
Filter	
Range max.	250.0 °C
Range min.	-20.0 °C
Field of view	44.98

Measurements

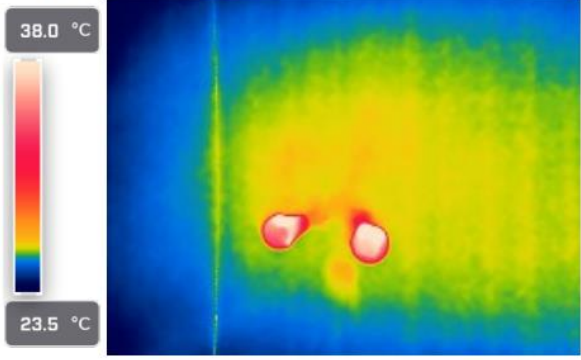
Bx1	
Max	28.0 °C
Avg	27.7 °C
Min	27.4 °C

Target Temperature	Reference Temperature	Temperature Difference	Criticality Rating
30° C	30° C	35.6° C	*
Amperage A	Amperage B	Amperage C	Rated Amps/Volts
See table	See table	See table	60A / 120/220V
Comments: Cellar area lower breaker panel – see above			
Recommendations: see above recommendations			



2023-01-18 6:36:25 PM

Living room light



FLIR0855.jpg

639122303

Parameters

Emissivity	0.95
Distance	1.05 m
Reflected temp.	30.0 °C
Atmospheric temp.	30.0 °C
Relative humidity	50.0%
Ext. optics temp.	30.0 °C
Ext. optics trans.	1.00

File information

File name	FLIR0855.jpg
File size	75 KB
Width	240
Height	180
Minimum temp.	23.0 °C
Maximum temp.	44.3 °C

Camera information

Camera model	FLIR E6xt Wifi
Lens	FOL7
Camera serial	639122303
Filter	
Range max.	250.0 °C
Range min.	-20.0 °C
Field of view	44.98

Measurements

Target Temperature	Reference Temperature	Temperature Difference	Criticality Rating
30° C	30° C	35.6° C	*
Amperage A	Amperage B	Amperage C	Rated Amps/Volts
See table	See table	See table	15A / 120V

Comments: Living room area main ceiling fan / light – picture for reference only

Recommendations: properly reattach to ceiling.



2023-01-18 6:36:25 PM



FLIR0887.jpg

Main floor office area



639122303

Parameters

Emissivity	0.95
Distance	1.05 m
Reflected temp.	30.0 °C
Atmospheric temp.	30.0 °C
Relative humidity	50.0%
Ext. optics temp.	30.0 °C
Ext. optics trans.	1.00

File information

File name	FLIR0887.jpg
File size	92 KB
Width	240
Height	180
Minimum temp.	26.0 °C
Maximum temp.	27.9 °C

Camera information

Camera model	FLIR E6xt Wifi
Lens	FOL7
Camera serial	639122303
Filter	
Range max.	250.0 °C
Range min.	-20.0 °C
Field of view	44.98

Measurements

Target Temperature	Reference Temperature	Temperature Difference	Criticality Rating
30° C	30° C	35.6° C	*
Amperage A	Amperage B	Amperage C	Rated Amps/Volts
See table	See table	See table	15A / 120V
Comments: Office area – picture for reference only			
Recommendations: replace with new switch cover for safety.			



2023-01-18 6:36:25 PM

main floor office area



FLIR0889.jpg



639122303

Parameters

Emissivity	0.95
Distance	1.05 m
Reflected temp.	30.0 °C
Atmospheric temp.	30.0 °C
Relative humidity	50.0%
Ext. optics temp.	30.0 °C
Ext. optics trans.	1.00

File information

File name	FLIR0889.jpg
File size	88 KB
Width	240
Height	180
Minimum temp.	26.5 °C
Maximum temp.	28.4 °C

Camera information

Camera model	FLIR E6xt Wifi
Lens	FOL7
Camera serial	639122303
Filter	
Range max.	250.0 °C
Range min.	-20.0 °C
Field of view	44.98

Measurements

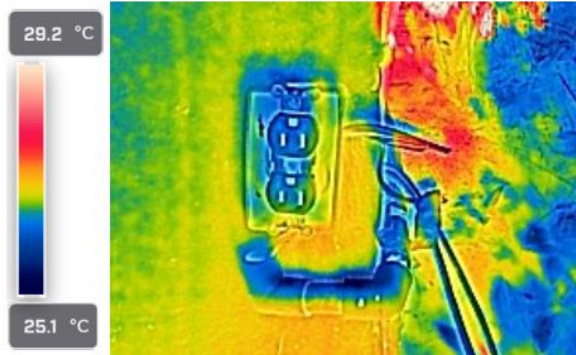
Target Temperature	Reference Temperature	Temperature Difference	Criticality Rating
30° C	30° C	35.6° C	*
Amperage A	Amperage B	Amperage C	Rated Amps/Volts
See table	See table	See table	15A / 120V

Comments: Office area – picture for reference only

Recommendations: reattach for safety.



2023-01-18 6:36:25 PM



FLIR0865.jpg

outside face of building



639122303

Parameters

Emissivity	0.95
Distance	1.05 m
Reflected temp.	30.0 °C
Atmospheric temp.	30.0 °C
Relative humidity	50.0%
Ext. optics temp.	30.0 °C
Ext. optics trans.	1.00

File information

File name	FLIR0865.jpg
File size	114 KB
Width	240
Height	180
Minimum temp.	25.3 °C
Maximum temp.	31.2 °C

Camera information

Camera model	FLIR E6xt Wifi
Lens	FOL7
Camera serial	639122303
Filter	
Range max.	250.0 °C
Range min.	-20.0 °C
Field of view	44.98

Measurements

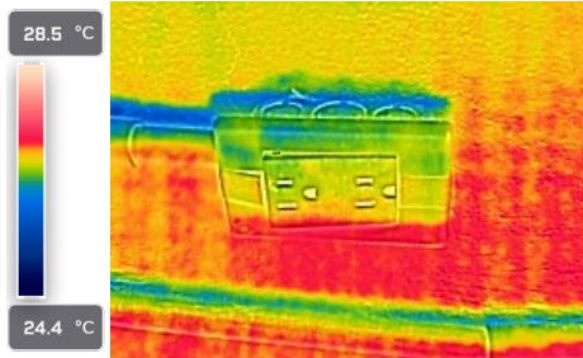
Target Temperature	Reference Temperature	Temperature Difference	Criticality Rating
30° C	30° C	35.6° C	*
Amperage A	Amperage B	Amperage C	Rated Amps/Volts
See table	See table	See table	15A / 120V

Comments: Outside wall side of building – picture for reference only

Recommendations: replace conduit with proper conduit, replace plug and box with proper outdoor rated equipment.



2023-01-18 6:36:25 PM



FLIR0867.jpg

outside face of building by front entrance



639122303

Parameters

Emissivity	0.95
Distance	1.05 m
Reflected temp.	30.0 °C
Atmospheric temp.	30.0 °C
Relative humidity	50.0%
Ext. optics temp.	30.0 °C
Ext. optics trans.	1.00

File information

File name	FLIR0867.jpg
File size	95 KB
Width	240
Height	180
Minimum temp.	25.4 °C
Maximum temp.	27.3 °C

Camera information

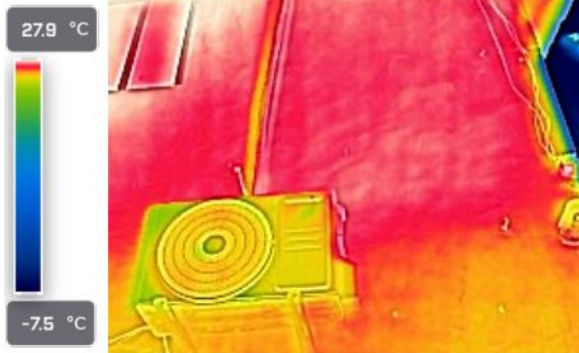
Camera model	FLIR E6xt Wifi
Lens	FOL7
Camera serial	639122303
Filter	
Range max.	250.0 °C
Range min.	-20.0 °C
Field of view	44.98

Measurements

Target Temperature	Reference Temperature	Temperature Difference	Criticality Rating
30° C	30° C	35.6° C	*
Amperage A	Amperage B	Amperage C	Rated Amps/Volts
See table	See table	See table	15A / 120V
Comments: Outside wall front of building – picture for reference only			
Recommendations: Same as above.			



2023-01-18 6:36:25 PM



FLIR0875.jpg

outside face of building side of villa



639122303

Parameters

Emissivity	0.95
Distance	1.05 m
Reflected temp.	30.0 °C
Atmospheric temp.	30.0 °C
Relative humidity	50.0%
Ext. optics temp.	30.0 °C
Ext. optics trans.	1.00

File information

File name	FLIR0875.jpg
File size	94 KB
Width	240
Height	180
Minimum temp.	-9.2 °C
Maximum temp.	28.4 °C

Camera information

Camera model	FLIR E6xt Wifi
Lens	FOL7
Camera serial	639122303
Filter	
Range max.	250.0 °C
Range min.	-20.0 °C
Field of view	44.98

Measurements

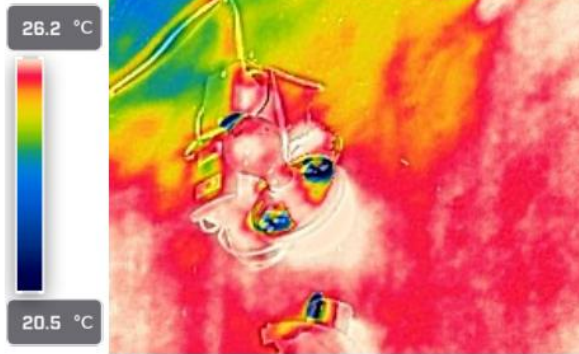
Target Temperature	Reference Temperature	Temperature Difference	Criticality Rating
30° C	30° C	35.6° C	*
Amperage A	Amperage B	Amperage C	Rated Amps/Volts
See table	See table	See table	20A / 220V

Comments: Outside wall side of building – picture for reference only

Recommendations: None all 3 AC units function properly.



2023-01-18 6:36:25 PM



FLIR0877.jpg

outside face of building rear wall



639122303

Parameters

Emissivity	0.95
Distance	1.05 m
Reflected temp.	30.0 °C
Atmospheric temp.	30.0 °C
Relative humidity	50.0%
Ext. optics temp.	30.0 °C
Ext. optics trans.	1.00

File information

File name	FLIR0877.jpg
File size	92 KB
Width	240
Height	180
Minimum temp.	10.7 °C
Maximum temp.	26.5 °C

Camera information

Camera model	FLIR E6xt Wifi
Lens	FOL7
Camera serial	639122303
Filter	
Range max.	250.0 °C
Range min.	-20.0 °C
Field of view	44.98

Measurements

Target Temperature	Reference Temperature	Temperature Difference	Criticality Rating
30° C	30° C	35.6° C	*
Amperage A	Amperage B	Amperage C	Rated Amps/Volts
See table	See table	See table	15A / 120V

Comments: Outside wall rear of building – picture for reference only

Recommendations: Use conduit to encase wires, change switch and light fixture to outdoor rated, motion detection preferable.



2023-01-18 6:36:25 PM



FLIR0879.jpg

breaker panel in pool pump enclosure



639122303

Parameters

Emissivity	0.95
Distance	1.05 m
Reflected temp.	30.0 °C
Atmospheric temp.	30.0 °C
Relative humidity	50.0%
Ext. optics temp.	30.0 °C
Ext. optics trans.	1.00

File information

File name	FLIR0879.jpg
File size	102 KB
Width	240
Height	180
Minimum temp.	27.3 °C
Maximum temp.	37.3 °C

Camera information

Camera model	FLIR E6xt Wifi
Lens	FOL7
Camera serial	639122303
Filter	
Range max.	250.0 °C
Range min.	-20.0 °C
Field of view	44.98

Measurements

Sp1	37.1 °C
Sp2	29.1 °C

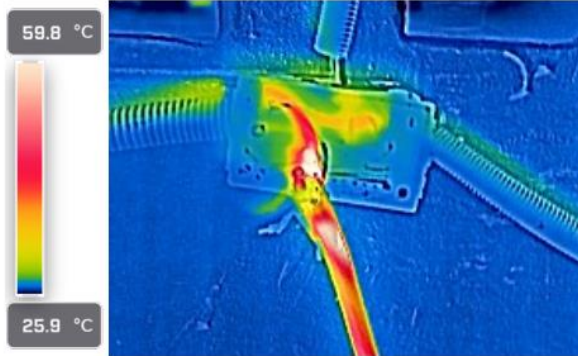
Target Temperature	Reference Temperature	Temperature Difference	Criticality Rating
30° C	30° C	7.1° C	*
Amperage A	Amperage B	Amperage C	Rated Amps/Volts
See table	See table	See table	20A / 120V

Comments: Pool enclosure breaker panel – picture for reference only

Recommendations: panel requires a cover, check and tighten connection on breaker and neutral, add a switch to the cct so the operator doesn't have to turn on and off using the breaker.



2023-01-18 6:36:25 PM



FLIR0881.jpg

pool pump motor cable junction box



639122303

Parameters

Emissivity	0.95
Distance	1.05 m
Reflected temp.	30.0 °C
Atmospheric temp.	30.0 °C
Relative humidity	50.0%
Ext. optics temp.	30.0 °C
Ext. optics trans.	1.00

File information

File name	FLIR0881.jpg
File size	114 KB
Width	240
Height	180
Minimum temp.	24.5 °C
Maximum temp.	66.2 °C

Camera information

Camera model	FLIR E6xt Wifi
Lens	FOL7
Camera serial	639122303
Filter	
Range max.	250.0 °C
Range min.	-20.0 °C
Field of view	44.98

Measurements

Sp1	66.2 °C
Sp2	64.0 °C

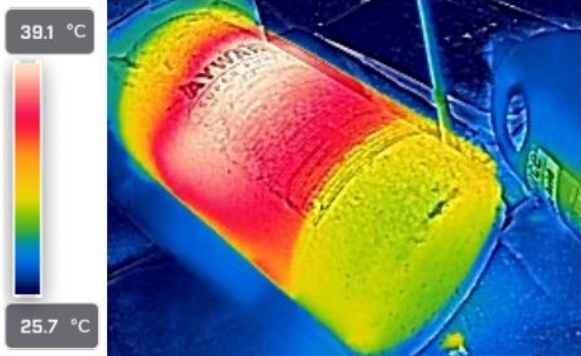
Target Temperature	Reference Temperature	Temperature Difference	Criticality Rating
66.2° C	30° C	36.2° C	***
Amperage A	Amperage B	Amperage C	Rated Amps/Volts
See table	See table	See table	20A / 120V

Comments: Pool enclosure pool pump connection junction box – picture for reference only

Recommendations: Criticality rating of 3 means failure likely, replace immediately. Replace cable with properly sized and rated cable, make solid bolted connections. Cover junction box.



2023-01-18 6:36:25 PM



FLIR0883.jpg

pool pump motor



639122303

Parameters

Emissivity	0.95
Distance	1.05 m
Reflected temp.	30.0 °C
Atmospheric temp.	30.0 °C
Relative humidity	50.0%
Ext. optics temp.	30.0 °C
Ext. optics trans.	1.00

File information

File name	FLIR0883.jpg
File size	123 KB
Width	240
Height	180
Minimum temp.	25.7 °C
Maximum temp.	39.3 °C

Camera information

Camera model	FLIR E6xt Wifi
Lens	FOL7
Camera serial	639122303
Filter	
Range max.	250.0 °C
Range min.	-20.0 °C
Field of view	44.98

Measurements

Sp1	39.2 °C
-----	---------

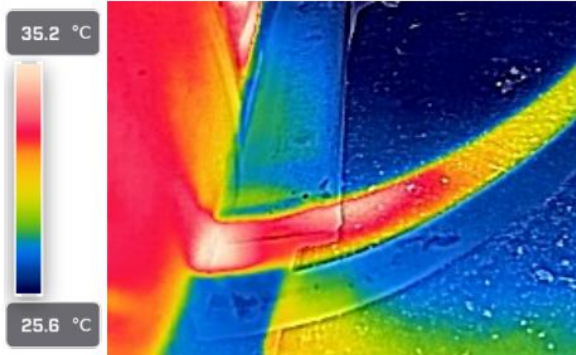
Target Temperature	Reference Temperature	Temperature Difference	Criticality Rating
39.2° C	30° C	9.2° C	*
Amperage A	Amperage B	Amperage C	Rated Amps/Volts
See table	See table	See table	20A / 120V

Comments: Pool enclosure pool pump connection junction box – picture for reference only

Recommendations: None, normal temperature rise for a motor.



2023-01-18 6:36:25 PM



FLIR0885.jpg

Pool pump motor feed cable connection



639122303

Parameters

Emissivity	0.95
Distance	1.05 m
Reflected temp.	30.0 °C
Atmospheric temp.	30.0 °C
Relative humidity	50.0%
Ext. optics temp.	30.0 °C
Ext. optics trans.	1.00

File information

File name	FLIR0885.jpg
File size	101 KB
Width	240
Height	180
Minimum temp.	25.4 °C
Maximum temp.	35.2 °C

Camera information

Camera model	FLIR E6xt Wifi
Lens	FOL7
Camera serial	639122303
Filter	
Range max.	250.0 °C
Range min.	-20.0 °C
Field of view	44.98

Measurements

Sp1	35.1 °C
-----	---------

Target Temperature	Reference Temperature	Temperature Difference	Criticality Rating
35.1° C	30° C	35.6° C	*
Amperage A	Amperage B	Amperage C	Rated Amps/Volts
See table	See table	See table	20A / 120V
Comments: Pool enclosure pool pump connection junction box – picture for reference only			
Recommendations: Replace cable, signs of overheating, see above.			

L1 14.6A
L2 18.6A

SINGLE PHASE PANEL SCHEDULE

Panel		Bus Rating		Single Phase		Voltage	
WPPER		120		4-wire		120/240	
Location CELLAR		Main Breaker (N/A) A		3-wire		120/208	
Fed from 100A DIS		Main lugs Only () A		Iso, GND			
A/C		Fed-thru lugs					
10K		25K					
14K		200K					
18K							
22K							
25K							
200K							
42K							
55K							
100K							

Circuit Description	Volts	Load Amps	Breaker	Pole	Bus	Pole	Breaker	Load Amps	Volts	Circuit Description	
1 2 WIRES	118	1.1W 4.8G	20A		A		40A	0.6BL	114V		2
3					B		40A	0.8BL	114V		4
5	118	0.5G	15A		A		20A	1.6F 0.78	114V		6
7					B		20A	14.6A	114V		8
9					A		15A	0.5A	114V		10
11					B		15A	6F	114V		12
13					A		15A	1.2A	114V		14
15	118	1.1.8	20A		B						16
17					A						18
19					B						20
21					A						22
23					B						24
25					A						26
27					B						28
29	118		15A		A						30
31					B						32
33	118	2.8F	15A		A						34
35					B						36
37	118	3F	20A		A						38
39					B						40
41					A						42
					B						

118 → 114

SINGLE PHASE PANEL SCHEDULE

Panel <u>Lower 6 CCT</u>	Bus Rating	Single Phase	Voltage
Location	<input type="checkbox"/> Main Breaker () A	<input type="checkbox"/> 4-wire	<input type="checkbox"/> 120/240
Fed form	<input type="checkbox"/> Main lugs Only () A	<input type="checkbox"/> 3-wire	<input type="checkbox"/> 120/208
A/C <input type="checkbox"/> 10K <input type="checkbox"/> 14K <input type="checkbox"/> 18K <input type="checkbox"/> 22K <input type="checkbox"/> 25K	<input type="checkbox"/> Fed-thru lugs	<input type="checkbox"/> Iso, GND	<input type="checkbox"/>
<input type="checkbox"/> 42K <input type="checkbox"/> 65K <input type="checkbox"/> 100K <input type="checkbox"/> 150K <input type="checkbox"/> 200K	<input type="checkbox"/> Double lugs		

	Circuit Description	Volts	Load Amps	Breaker	Pole	Bus	Pole	Breaker	Load Amps	Volts	Circuit Description	
1		115V	0.5A	40A		A						2
3						B						4
5		119V	1.7AB	20A		A						6
7						B						8
9		119V	4.0	30A		A						10
11						B						12
13		115V	5.0BC	30A		A						14
15						B						16
17		116V	0DL	20A		A						18
19						B						20
21	Assure	119V	0 BL	30A		A						22
23						B						24
25	2 green					A						26
27						B						28
29	feeders at Bert					A						30
31						B						32
33						A						34
35						B						36
37						A						38
39						B						40
41						A						42
						B						

Insulated Power Connectors

HOME / LUGS & SPLICES / INSULATED POWER CONNECTORS



Insulated Power Connectors | Insulated Multi Tap Connectors

ElecDirect offers insulated aluminum multi tap connectors for splice, reducer and tap applications which are dual rated for aluminum and copper conductors, simultaneous accommodations at 600V and 90°C.

Pre-insulated at factory filled with oxide inhibitor and Plugged Ports

- Clear PVC allows visual inspection of conductor properly inserted at installation and final inspection approval.
- Prevents oxidation, moisture and contaminants from contact surfaces.

Wide conductor range

- Available in 2 through 14 conductor configurations in five conductor sizes.

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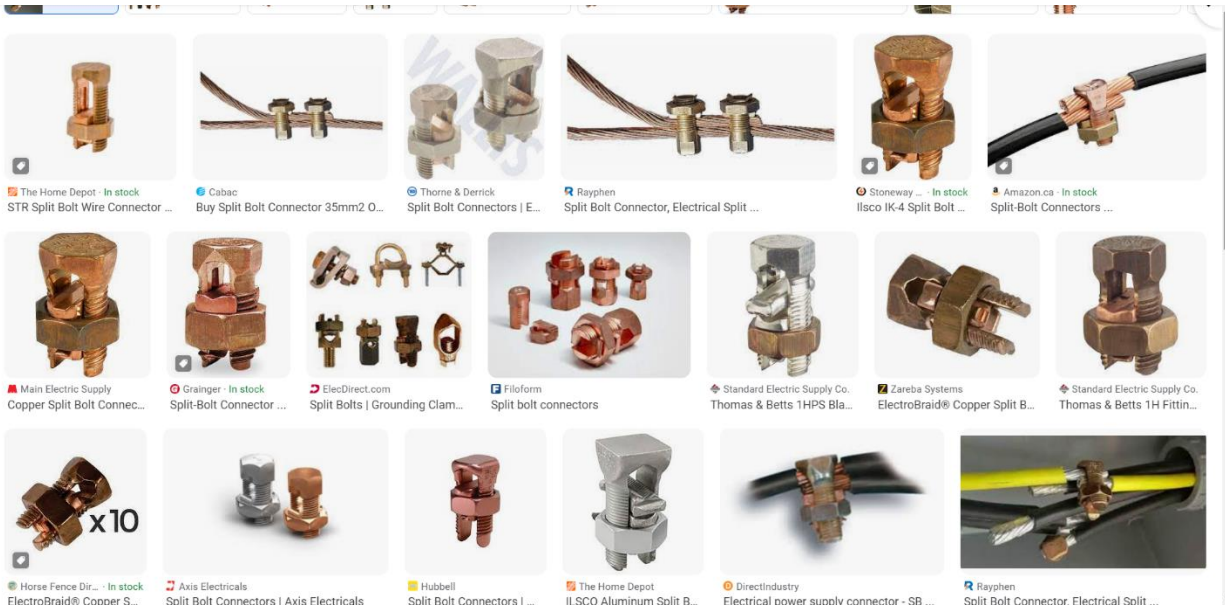
SHOP BY



Items 1-75 of 191

Position





Tools & Home Improvement › Electrical › Breakers, Load Centers & Fuses › Accessories › Safety Switches



Roll over image to zoom in



Square D - Square D D223N 100 Amp 240Vac Single Throw Safety Switch 2P
 Visit the Schneider Electric Store
 4.2 ★★★★★ 37 ratings

Operation Mode	Electric
Current Rating	100 Amps
Operating Voltage	240 Volts
Brand	Square D by Schneider Electric
Item Dimensions LxWxH	6.38 x 10.5 x 17.5 inches
International	IP00
See more	

Material Metal	Mounting Type Surface Mount
--------------------------	---------------------------------------

- About this item**
- 3-wire design with 2 blades and fuse holders and 1 neutral
 - 120/240 Volts AC
 - Rated for 100 Amperes
 - NEMA Type 1 metallic enclosure for indoor use
 - 7.5/15.0 Horse Power 240 Vac single phase (Standard/Maximum)
- [See more product details](#)
- [Report an issue with this product or seller](#)